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ABSTRACT

The academic achievement of students in business and marketing programs at High Schools That Work (HSTW) sites in 1996 was compared to performance levels in 1994. Between 1994 and 1996, the average reading scores of business students at HSTW sites increased from 271 to 279, and their average mathematics scores increased from 286 to 290. A higher percentage of students in business programs met the HSTW performance goals in reading and mathematics than did all students participating in the 1996 assessment. HSTW business students continued to outpace their national counterparts in reading, mathematics, and science. Male business students improved substantially in reading and mathematics in 1996. The bad news is that one-half of those students could not construct written and oral responses and that science scores for business students did not improve. The following were among the recommendations presented: (1) set high expectations and get students to meet them; (2) offer intellectually challenging occupational studies; (3) increase access to academic courses teaching the essential content from the college preparatory curriculum; (4) provide a structure of work-based and school based learning for students; (5) enable academic and vocational teachers to plan together; (6) involve students and parents in planning programs of study; (7) provide extra help; and (8) use student assessment to advance learning. (MN)

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Yvonne Thayer

Research Brief
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HIGH SCHOOLS THAT WORK

Research Brief

Number 11 - July 1997

The 1996 *High Schools That Work* Assessment: Good News and Bad News for Business and Marketing Programs

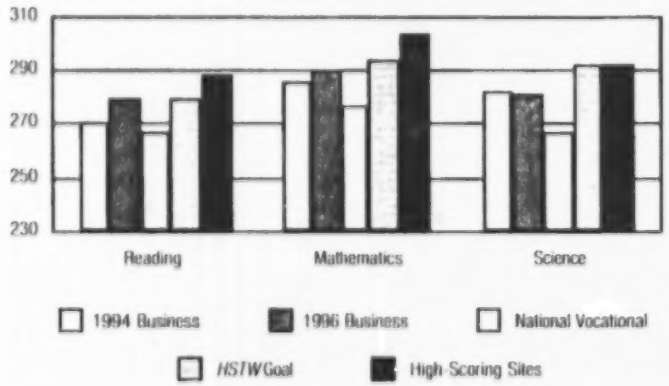
By Gene Bottoms and Yvonne Thayer

The 1996 *High Schools That Work* Assessment report contains good news and bad news about the performance of students in business and marketing programs. The report shows that where business and marketing (hereafter referred to as business) teachers join with academic teachers to implement the *HSTW* key practices, improvement in the achievement of students in business-related studies is occurring. The good news is apparent in several ways, including:

1. Business students at *HSTW* sites that participated in the assessment in 1994 and again in 1996 showed significant improvement in average reading and mathematics scores. Reading scores increased from 271 to 279 and mathematics scores from 286 to 290. (See Figure 1.)
2. A higher percentage of students in business programs met the *HSTW* performance goals in reading and mathematics than did all students participating in the 1996 assessment. More than one-half of all business occupations students in 1996 scored at or above the *HSTW* reading goal of 279 while almost half met the mathematics goal of 295. (See Figure 2.) This means that about half of business students can construct a response to a customer complaint, or research and prepare an itinerary for a cost-effective multi-state business trip. It means that about half can read descriptive data tables and prepare a bar graph to track monthly sales.
3. *HSTW* business students continue to outpace their national counterparts in the three subject areas. The differences in 1996 were 13 points in reading, 13 points in mathematics and 16 points in science. Between 1994 and 1996, *HSTW* sites widened the gap between business students and vocational students nationally in reading and mathematics. (See Figure 1.)
4. Male business students improved substantially in reading and mathematics in 1996. The average reading score increased from 267 to 275, while the average mathematics score rose from 289 to 297 (exceeding the *HSTW* goal). Female students exceeded the *HSTW* reading goal by increasing their scores from 273 to 281.

Figure 1

Average Achievement Scores of Business and Marketing Students



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The bad news is that one-half of these students cannot construct written and oral responses—a skill expected of all office workers. Further, at least half of these students do not have the mathematical skills necessary to prepare and interpret data tables—a routine function in most offices. This lack of skills is why a growing number of employers are hiring college-prepared youth rather than high school graduates as office employees.

Science scores for business students did not improve. Instead, they stayed 10 points below the *HSTW* goal of 292. Female business students scored poorly. Although African American students improved in reading, their scores in mathematics and science remained unchanged. The percentage of business students meeting the *HSTW* science goal (37 percent) is one indication that over 60 percent of these students lack the scientific literacy skills necessary to work in a technical office setting.

Hope lies in knowing what to do. Successful business programs:

- **Set high expectations and get students to meet them.**

HSTW sites that required business students to complete challenging assignments both in and out of class had higher average scores. Students who met the reading goal wrote research papers and completed short writing assignments, read books outside of class and made oral presentations several times a year. Students who did at least 30 minutes of homework each day had significantly higher reading, mathematics and science scores than students who usually did not have homework or did not do it. Sixty percent of business students were encouraged to take more mathematics and science courses. Forty-five percent of them took mathematics in their senior year and 31 percent took science in their senior year. Student achievement was significantly higher if students took a mathematics or science course in the 12th grade.

Unfortunately, the expectations for business students were so low that 30 percent could graduate from high school without making any effort outside of class. Fifty-nine percent did no homework in a typical week for a vocational teacher. **Business departments and teachers can take the lead in designing challenging business-related projects for each grading period. These projects should require work outside of class as well as research, writing, number and data use and oral presentations.**

- **Offer intellectually challenging occupational studies.**

The good news is that students whose business teachers often stressed reading, writing and mathematics had above-average scores in reading and mathematics. About one-half of business teachers are designing learning experiences that require students to use communication and mathematics skills. Seventy percent of business students reported that they were required to use a computer frequently to complete assignments. The bad news is that at least one-half of business students had not been given complex open-ended projects that required them to do research, construct and carry out procedures and evaluate the results.

Writing reports, making presentations, handling demanding customers and making greater use of technology to improve performance are but a few of the expectations employers have for modern office workers. A young person entering

Figure 2

Percentages of Business and Marketing Students Meeting the *HSTW* Performance Goals in Reading and Mathematics

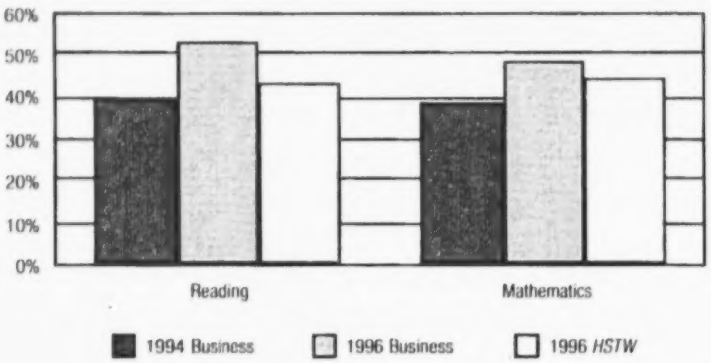

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Figure 3

Performance of Students Completing Challenging Courses

Curriculum Level	Percent	Average Score	*HSTW* Goal
High-Level English	38	286	279
Low-Level English	62	275	
High-Level Mathematics	73	297	295
Low-Level Mathematics	27	270	
High-Level Science	43	289	292
Low-Level Science	57	277	

today's workplace should be able to accept a project, determine the tasks and resources needed and establish a time line that meets an employer's requirements.

Seventy-seven percent of business students take five or more business courses. This gives teachers in the business department time to work together to structure a planned sequence of quality learning experiences for their students. Business departments and teachers can create challenging classes by:

- Studying the *HSTW* assessment data and emphasizing skills in which business students are weak (problem solving in mathematics, conducting inquiries in science and constructing responses to written materials or problems encountered in business);
- Replacing outdated courses such as bookkeeping, shorthand and note-taking with upgraded courses and programs that meet business standards;
- Providing more opportunities for students to engage in project learning;
- Offering frequent opportunities for students to use written and oral communication skills;
- Providing training in time management, task organization and prioritization;
- Helping students understand the importance of mathematics in a business setting by assigning business problems that require mathematics skills;
- Developing joint projects with academic teachers to stress the application of academic concepts in business projects;
- Focusing on the development of independent learners with multiple responsibilities.

■ Increase access to academic studies that teach the essential content from the college preparatory curriculum.

The good news is that business students who completed college-preparatory English and mathematics courses met or exceeded the *HSTW* performance goals in reading and mathematics. It is encouraging that 73 percent of these students completed the *HSTW*-recommended mathematics curriculum, but it is troubling that only 43 percent completed the science curriculum and 38 percent the English curriculum. (See Figure 3.) At high-scoring sites, 53 percent of career-bound students completed the English curriculum, 84 percent completed the mathematics curriculum and 62 percent completed the science curriculum. In each case, the average scores exceeded the *HSTW* goal. That is encouraging.

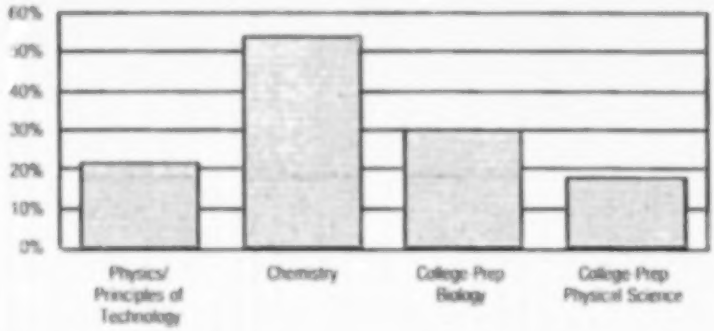
Twenty-four percent of business students continue to take no more than two science courses in high school. The glaring deficit in science performance will not shrink until schools require career-bound students to complete three years of high-level, laboratory-based science. (See Figure 4.) A sequence of science courses will give business students the edge for employment in a high-paying technical work setting. However, only about 20 percent of business students completed physics, Principles of Technology or college-preparatory physical science, while only 54 percent took chemistry.

It is also bad news that more than 60 percent of business students were taking low-level English courses in the 12th grade. These students had an average reading score of 275 compared to 289 for students enrolled in academic English. All business students should complete an advantaged English curriculum—one that requires them to read extensively and to evaluate, organize and synthesize the content into written and oral reports.

About one-third of business students were still taking pre-algebra

Figure 4

Percentages of Business Students Completing High-Level Science By Course



and basic algebra. Students taking these courses had average mathematics scores of 277 and 280, compared to 295 for students taking college-preparatory Algebra I. Most business students who spend two years in low-level algebra courses will not be able to complete more advanced mathematics or statistics courses. (See Figure 5.)

Business departments and teachers cannot have a great program by operating in isolation of the total curriculum. They must reach out to academic teachers in getting more business concepts into academic courses. Business students need encouragement to take the right academic courses—not just an opportunity to take more courses.

- **Have business students complete a challenging program of study consisting of an upgraded academic core and a major.**

An upgraded core includes at least four years of college-preparatory English and three years each of mathematics and science, including at least two years in each area equivalent in content to courses offered in the college-preparatory curriculum. A major includes at least four Carnegie units in a broad technical field or further academic studies and two Carnegie units in related technical or academic core courses.

A review of the 1996 assessment data provides additional good news. Business students who completed all components of the *HSTW*-recommended curriculum in English, mathematics and science scored significantly higher in these three areas. These students had average scores that greatly exceeded the *HSTW* performance goals. (See Figure 6.)

If 73 percent of business students can complete the recommended mathematics curriculum with an average score that exceeds the *HSTW* goal, then why can't they complete college-preparatory English and science courses? Could it be that no one cares enough about these students to make sure they complete a sequence of advantaged academic and vocational courses needed for further study and success in business? Or could it be that the high school system is based on perceptions of students' prior performance rather than on what they need to achieve future goals?

The problem lies with the system. Business students should take courses that build strong communication, science, mathematics and technical skills.

Business teachers can take the lead with counselors and academic teachers to:

Figure 5

Percentage of Business Students Completing High-Level Mathematics By Course

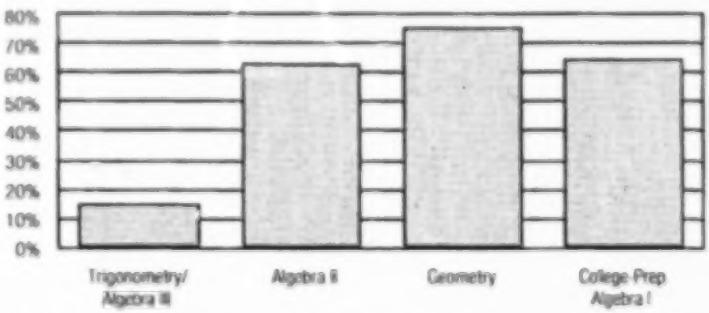


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Figure 6

Comparison of the Performance of Business Students Completing All Components of the *HSTW*-Recommended Curriculum in English, Mathematics and Science

	Average Scores READING	Average Scores MATHEMATICS	Average Scores SCIENCE
Met All Curriculum Goals	290	310	294
Did Not Meet All Goals	276	284	279
HSTW Goals	279	295	292

- Establish career pathways that include high-level courses formerly reserved for college-preparatory students (high-level science, mathematics and English courses as well as foreign languages, economics and computer science taught to *HSTW* standards);
- Eliminate low-level academic courses entirely;
- Assume a proactive role in helping parents and students understand the importance of completing a challenging, well-rounded program of study;
- Act on the belief that every student at every school is entitled to and capable of handling quality learning experiences;
- Give parents and students information from employers and post-secondary schools to support the emphasis on quality learning.

■ Provide a structured system of work-based and school-based learning for students.

Seventy-three percent of business students had jobs during their senior year. The good news is that students who worked up to 15 hours per week had significantly higher achievement in reading, mathematics and science than those who did not work. Forty-four percent of business students, compared to 34 percent of all vocational students who were employed, participated in a school-sponsored work-based learning program for which they received school credit. About one-half of students had work site experiences that prepared them for multiple assignments, including dealing with customers and working in teams. Students said they:

- Rotated through several work assignments (23%);
- Observed veteran workers (25%);
- Were encouraged to develop good working habits (56%);
- Received help with communication skills (46%);
- Were encouraged to have good customer relations (59%);
- Were assisted in learning new duties and responsibilities (48%);
- Were evaluated on the job (49%).

An effective work-based learning program can provide students with rich learning experiences. A strong connection between the workplace and the school can advance students' academic and technical achievement and improve grades.

The bad news is that business students participating in a school-sponsored work-based learning program had slightly lower achievement in reading, mathematics and science than did students who simply had a job. Evidence suggests that the majority of students working for school credit were among the 37 percent working more than 21 hours per week. While business students had richer work site learning experiences and were employed in jobs related to their vocational studies, this advantage was offset by the extra hours they worked and the failure to take high-level English, mathematics or science courses during their senior year.

High school leaders—including business teachers and vocational administrators—can build better business programs by setting high standards for awarding school credit for work site learning. In doing so, they should:

- Award credit for work site learning only to students who are completing the *HSTW*-recommended curriculum.
- Require students to take four school-based credits in the 12th grade. Three credits should be in high-level academic courses, including mathematics or science;
- Limit the number of working hours to no more than 20 per week.

- Require students participating in work site learning programs to raise their grade point average in school-based courses.
- Work with academic teachers to help them use student work site experiences to improve academic learning for participants.

■ Enable academic and vocational teachers to plan together.

The good news is that business students at 15 *HSTW* advanced integrated learning sites had reading, mathematics and science scores that exceeded the scores of business students at experienced *HSTW* sites. Students at the advanced integration sites scored 283 in reading, 295 in mathematics and 284 in science. Business teachers at these sites had time to plan with teams of academic teachers for the explicit purpose of improving students' academic and business achievement.

Although students believe teachers work together, there is little evidence that academic and technical teachers are creating challenging assignments that encourage students to connect what they are learning in one class with the content and skills of another. The bad news is that most business students could not recall having a joint assignment involving an academic and a vocational teacher that resulted in a grade in both classes. If they had such an experience, the quality of the assignment was so low that it did not advance student achievement. Students in all academic and business classes need learning assignments that strengthen their problem-solving and thinking skills.

The organizational structure of most high schools deters teams of academic and technical teachers from planning together. Where schools provide planning time and encourage teams of teachers to try new ideas, the quality of learning in both academic and vocational classes is enhanced. Students in all academic and business classes need learning assignments that strengthen their problem-solving and thinking skills. Students should develop the self-confidence to work both independently and as a team member. Skills required in today's workplace can be developed through more planned group projects and individual help.

Business teachers can take the lead to promote natural connections that exist between business studies and English, mathematics, science and social studies. To do so, business teachers will need to create business and related projects that go beyond résumé- and letter-writing. Business teachers can take the lead in:

- Working with English teachers to design a major research paper on a business topic chosen by the student and approved by the business teacher.
- Joining with a mathematics teacher to create a major project that involves the application of mathematics concepts to business. The topic should be chosen by the student and approved by the business teacher.
- Having students use word processing time in class to prepare a laboratory report on a science experiment.

Each of these activities gives students an open-ended situation in which they must produce a product and defend their ideas orally and in writing.

■ Engage each student actively in the learning process.

Students learn more when they are engaged in completing challenging assignments. Activities associated with higher achievement include collecting, evaluating, organizing and presenting information for senior projects, major research papers, short reflective writing assignments and special mathematics projects. Other activities include solving open-ended problems and completing projects that require academic and technical knowledge.

The bad news is that business students are not participating in many of these learning activities:

- 71% were never required to present a special mathematics project to the class;
- Only 33% prepared more than two written reports on a science project;
- Only 23% gave more than two presentations about science projects;
- Only 25% prepared more that two major research papers each year;
- 62% read more than two assigned books outside of class;
- Only 44% made more than two presentations on an assigned project;
- Only 30% used a computer to complete mathematics assignments twice a year.

Business teachers can take the lead in creating a classroom where all students are engaged in completing challenging assignments. Business teachers can:

- Attend staff development sessions on new methods—such as cooperative learning, project-based learning, portfolio assessment, etc—and implement these methods in their classrooms;
- Offer more sections of fewer courses, and spend time making the content challenging and exciting;
- Help students become independent learners by preparing a course syllabus that discusses the projects students must do and the level of achievement they must attain to earn a passing grade.

■ Involve each student and his or her parents in planning a high school program of study.

The good news is that more business students in 1996 than in 1994 indicated that they planned to pursue further study. However, the bad news is that many of these students were not prepared to continue their education. The further bad news is that these students did not receive the guidance and advisement support that would result in completion of a carefully-planned sequence of courses. For example, 32 percent of business students received no help in developing a program of study, 23 percent were not satisfied with their course selection and 42 percent found most courses unchallenging. This is understandable, considering that 80 percent of students did not meet jointly with a parent and an advisor to discuss course options.

Counselors and teacher advisors need to help business students and their parents understand what is required for successful transition into postsecondary studies and a primary job in a business setting. The failure to confront youth with the realities of life is one of the major weaknesses in improving the quality of learning for business students.

Business teachers should consider several steps in improving the advisement process:

- Develop an advisement program within the business department. Assign teacher mentors and ask them to help a group of students complete a carefully planned sequence of advantaged academic and business courses.
- Sponsor career fairs, mock job interviews and other authentic experiences to allow students to interact with business leaders in expanding their understanding of the business world and its demands and opportunities.
- Ask several businesses to administer their employment tests to students.
- Work with businesses to develop job shadowing experiences to further students' understanding of the new business workplace.
- Communicate with parents of students in beginning business courses. Share information about career and related educational opportunities and the high level of education and skills required for success.

■ Provide extra help.

The news regarding extra help for business students is good. More than half of the students received extra help in reading from their English teachers, while over 80 percent received extra help from their mathematics teachers. More than half reported that their families helped in reading and mathematics. Business teachers did not provide the same level of support. Only 30 percent of students reported receiving reading and mathematics assistance from their business teachers.

The bad news is that 23 percent of business students who scored below the basic reading level received no extra help in reading, while eight percent who scored below the basic mathematics level received no extra help in mathematics.

Extra help and extra time for learning is the support system that makes higher expectations and higher performance possible. Business teachers can take several actions to support extra help for learning:

- Monitor students' grades and performance in other classes. When a student has difficulty in another class, talk with the teacher and develop integrated learning activities that will give the student additional guided practice.
- Include reading, writing and speaking as common activities in the business classroom. Ask English teachers to assist in planning these activities and evaluating the students' performance.

- Develop lessons that focus on mathematical and scientific applications in business.

■ Use student assessment to advance student learning.

HSTW sites improve when leaders use assessment data to guide changes in school and instructional practices. The bad news is that too many school leaders are failing to use data to engage the faculty in continuous school improvement.

Teacher leaders can use data to improve the business program by:

- Attending *HSTW* workshops that teach site teams how to understand and use assessment data;
- Reviewing data on the business program with all business teachers and developing a mini-action plan aimed at raising student achievement, especially in reading, writing, mathematics and science;
- Sharing improvement plans with counselors and asking their support in raising expectations for business students.

Summary

Leaders from the most progressive schools in the *High Schools That Work* network use information—such as the findings in this report—to implement improvement plans that focus on fixing the system. They do not blame teachers, students or the community. Rather, they work with stakeholders to build a school program that emphasizes high performance.

The data provided in this report and the suggestions given for implementing the findings can help improve the achievement of business and marketing students throughout the *HSTW* network. The actions proposed in this report can assist high schools in raising expectations and challenging students to perform at a level commensurate with academic students throughout the nation.

High-Level Business Program: The Academy of Finance

As schools develop career clusters and suggest appropriate pathways for business students, the time is right for upgrading existing business programs. Some high schools choose to reorganize into the school-within-a-school concept. A model high-level program that fits into this structure is the Academy of Finance, sponsored by the nonprofit National Academy Foundation.

The Academy of Finance gives high school students an opportunity to learn about and prepare for careers in the financial services industry: banking, investment, foreign currencies, credit, real estate and insurance, as well as related fields such as accounting, computer programming and telecommunications.

This program links business, education and the community. In addition to required academic courses, students take two or three specialized courses per semester. Examples are Banking and Credit, Financial Planning and International Economics. Academy students are required to complete a college preparatory sequence of courses which includes foreign language and keyboarding. In the summer between junior and senior year, academy students serve paid internships at local banks, insurance companies and other financial institutions. Students who complete the program receive a Certificate of Financial Services.

A finance academy has the potential to make dramatic changes in a high school program of business studies by:

- Offering a concentration of business and related courses that impart in-depth knowledge of the business field;
- Preparing students for the broader world of business by developing diverse knowledge and skills;
- Upgrading the content of business and marketing courses with modern business practices and expectations for employees.

Gene Bottoms is Vice President for Education and Work and Yvonne Thayer is Director of the Appalachian Project at the Southern Regional Education Board.

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